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THE MEASUREMENT OF PERSONALITY

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THE MEASUREMENT OF PERSONALITY*

BY FORREST H. KIRKPATRICK

Bethany College

A discussion with special reference to the Bernreuter Personality Inventory and its use at Bethany College.

INTRODUCTION

Probably since the earliest days men have attempted to classify and describe their fellows and to explain those characteristics that mark one man as different from another. Various devices and techniques have been used from time to time by honest students in the field and by charlatans who have preyed upon the interest of men in this subject.

Some psychologists, who have studied in this field, have usually put an emphasis upon the description and classification of the total personality. This concept seems to have come from the field of philosophy rather than the field of science which has long been approaching its problems in an atomistic fashion. Some have almost assumed that personality is something simple and static. We have been charged to remember "the whole man."

With the growing realization that personality is complex and dynamic, the attempts to describe it and classify it have gone along on more modest lines. Most psychologists today are content to study and describe single aspects of personality. Only in the case study method do we think of studying "the whole man," and the concept of personality as a "unitary something" no longer survives. Psychologists now think about the measurement and study of "traits" and "manifestations" of personality. There is, of course, a constant danger in this procedure for too much importance may be attached to a single aspect, and this may obscure the greater significance of the total integrated personality. It has been fruitful, however, in that it has made possible an empirical attack on these important problems.

Within the last decade some attention has been given to the matter of devising tests for the measurement of personality traits.

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The early work of Woodworth and the development of a psychoneurotic inventory ("Personal Data Sheet")⁽²⁷⁾ paved the way in terms of technique and encouragement for many investigations. Some of the others who followed in this field were House⁽⁹⁾, Laird⁽¹³⁾, Freyd⁽⁶⁾, Pressey⁽²¹⁾, Allport⁽¹⁾, Thurstone⁽²⁵⁾, Bernreuter⁽³⁾, Symonds⁽²³⁾, Cowan⁽⁴⁾, Pintner⁽²⁰⁾, and Guilford⁽⁷⁾. Thurstone's "Personality Schedule" was largely adapted from the earlier work in this field. It has certain weaknesses that have been pointed out rather clearly.⁽¹²⁾ Symonds has undertaken to measure "adjustment" and his tests are more definite departures from what has been done by some of the others. An eight page inventory set up to be administered as a group test and designed to reveal maladjusted pupils in Grades 4 to 9 was published by Pintner and associates in 1938. Cowan's "Adolescent Personality Schedule" is modeled after the Thurstone schedule. "The Nebraska Personality Inventory" by the Guilfords aims to measure three of the five factors obtained from a factorial analysis of the responses to thirty-six questions of the type which have been traditionally used to diagnose tendencies toward introversion or extroversion. The growing interest in personality measurement is revealed by the increasing number of publications in this field and the place it has assumed in educational and psychological study and discussion.

It is not certain, however, that the actual *measurement of personality* has gotten under way even now. Terman⁽²⁴⁾ maintains that at present we are not measuring personality but responses which reveal certain aspects of personality. Further analysis should be made of the significance of the variations in responses to specific items as well as total test. He criticizes measurement enthusiasts who lose sight of the dangers inherent in the reduction of psychological data by mathematical tools. He asks the question, "Is it really possible to measure personality in the strict sense of the word 'measure' as the physicist, for example, is accustomed to use the term?" Terman feels that the clinical approach is absolutely necessary for the interpretation of the personality as a whole. Hendrickson⁽⁸⁾ in a discussion of the assumptions underlying personality measurement considers the nature and stability of personality as well as the social factors involved. Vernon⁽²⁶⁾ in writing on "The Measurement of Personality and Temperament" says that a temperament or personality trait can not be defined solely in terms

of objective behavior, but is dependent upon observation and interpretation of such behavior by human minds. He feels that a single test, or set of ratings, can not give an adequate measure of a trait; instead a variety of diverse tests should be combined into a positive score.

In this discussion no mention has been made of the development and use of instruments to measure psychogalvanic reflex and other physiological indications of attitude, the studies in constitution and its significance for typology, or the special clinical methods. These are certainly "measurements of personality" and are omitted because of the severe restrictions of this paper. It is interesting to note that in a review of the literature from January 1932 to January 1935 Olson⁽¹⁸⁾ found 161 titles covering reports of studies treating: (a) contributions to technique, including systematic observations, ratings, tests, expressive movements, psychogalvanic studies, physiological studies, inventories, factor analyses; (b) characteristics, traits and constellations of behavior, including delinquency, character and personality scales, developmental ages, emotions, eating behavior, friendship and quarreling, honesty, humor, leadership and popularity, negativism, "only" children, play, recklessness, social and ethical information, socio-economic factors, studiousness, and vocalization; (c) the patterning of character and personality measures; (d) the modification of information and conduct including direct and indirect instruction, motivation, and the effect of organization membership.

BERNREUTER INVENTORY

While working at Leland Stanford University, Robert G. Bernreuter constructed a test which he entitled "Personality Inventory." It was first described in the psychological literature in 1933⁽³⁾ although Symonds⁽²²⁾ mentions it in his book "Diagnosing Personality and Conduct" which was published in 1931.

The Personality Inventory was designed at first to estimate those traits which have been termed neurotic tendency, introversion-extroversion, ascendance-submission, and self-sufficiency. It was constructed "to determine the feasibility of estimating more than a single personality trait at one time," and according to Bernreuter⁽²⁾ it "assumes that the integrated behavior of an individual in any situation may be interpreted from various points of view." It might

be said that this is an integration of the various questionnaires and schedules which preceded Bernreuter's work. His first inventory contains 125 questions which are to be answered by encircling one of three responses, i.e. *yes*, *no*, and *?*, and it is to be scored in four ways to yield (a) a measure of neurotic tendency, (b) a measure of self-sufficiency, (c) a measure of introversion-extroversion, (d) a measure of dominance-submission. It is largely because it was advertised as a "four-in-one" measure that this Inventory has been used so widely. Reliability coefficients were reported for college psychology classes shortly after the test was issued, all of which were over .85. Reliability was established by the split-half method.

The four items on the Bernreuter were validated by correlating them against (a) Thurstone's Personality Schedule, (b) the Bernreuter Self-Sufficiency Test, (c) the Laird C-2 Introversion Test, (d) the Allport Ascendance-Submission Reaction Study. The reported coefficients of correlation, when correlated for attenuation, are all over .90 (with one exception), and most of them are close to 1.00. The coefficients of validity as reported are:

	Group A		Group B	
	Uncorr.	Corr.	Uncorr.	Corr.
B1N and TN .....	.94	1.00	.91	.99
B2S and SS .....	.89	1.00	.86	1.00
B31 and C2 .....	.76	.99	.69	.92
B4D and AS (men) .....	.81	1.00	.67	.84
B4D and AS (women)	----	----	.82	.99

In concluding a statement on "Validity of the Personality Inventory" Bernreuter said⁽²⁾: "It now seems apparent that scores obtained under standard conditions are not due merely to chance; neither do they represent attempts to gain social approval; nor do they indicate what subjects would like to be like."

In checking on the items of the Bernreuter Inventory we found that a great many of the question items were evidently taken from tests used in validating the Inventory. There are 50 Bernreuter items similar to 50 items in the Thurstone schedule, and around 30 items in common with items from the Allport A.S. test. These findings would suggest that the high validity coefficients reported by Bernreuter are to a large degree spurious.

The exact questions in the Inventory follow the Thurstone pattern very closely. Such questions as the following are used:

1. Does it make you uncomfortable to be "different" or unconventional?
2. Are you troubled with shyness?
3. Do you very much mind taking back articles you have purchased at stores?
4. Do you often experience periods of loneliness?
5. If you are dining out do you prefer to have someone else order for you?
6. Do you usually ignore the feelings of others when accomplishing some end which is important to you?
7. Do you often find that you cannot make up your mind until the time for action is passed?
8. Do you especially like to have attention from acquaintances when you are ill?
9. Do you experience many pleasant or unpleasant moods?
10. Are you troubled with feelings of inferiority?
11. Does some particularly useless thought keep coming into your mind to bother you?
12. Do you ever upbraid a workman who fails to have your work done on time?
13. Are you able to play your best in a game or contest against an opponent who is greatly superior to you?
14. Do you usually avoid asking advice?
15. If you are spending an evening in the company of other people do you usually let someone else decide upon the entertainment?
16. Do you take the responsibility for introducing people at a party?
17. If you come late to a meeting would you rather stand than take a front seat?
18. Does your mind often wander so badly that you lose track of what you are doing?
19. Do you find that people are more stimulating to you than anything else?
20. Do your feelings alternate between happiness and sadness without apparent reason?

The Bernreuter Inventory has enjoyed great popularity and many persons have experimented with it. The findings from all of the various experiments could not be summarized here. It is possible to mention only the following which represent types of studies undertaken.

- (a) Johnson⁽¹⁰⁾ studied the effect of mood on personality traits as measured by Bernreuter using 15 college women. He determined mood by a word list to which they responded. Small differences in Bernreuter were found for the two moods.
- (b) Darley & Ingle⁽⁵⁾ administered the Inventory to employed and unemployed workers. They found it effective in identifying those individuals who had been previously diagnosed as psychotic cases.
- (c) Landis & Katz⁽¹⁴⁾, who gave Bernreuter's and Thurstone's inventories to psychiatric patients, concluded that "the scores on the tests are not adequate measures of neurotic tendency, so far as psychiatric patients are concerned."
- (d) Laslett & Bennett⁽¹⁵⁾ correlated the scores on Bernreuter's Inventory with scores on the Kent-Rosanoff clinical test of free association, and found no relationship between the two. They concluded that "the two tests do not measure the same thing or they do not measure it in the same way."
- (e) Yu⁽²⁸⁾ reports that the difference between manic-depressive and dementia praecox cases on the Inventory was too slight "to warrant its use as a diagnostic tool."
- (f) Omwake et al⁽¹⁹⁾ found no relationship between scores on the Inventory and physiological tests of metabolism, blood pressure, etc.

Bernreuter's basic contribution to the measurement of personality is that of regarding the subject's response to each item of a test as an indication of several types of adjustment, of several modes of reaction, or of several traits. The Inventory was first intended to be what was referred to above as a "four-in-one" measure but he has revised it until he now claims that it can be used to appraise six different personality traits. Bernreuter was the first person to apply this principle of multiple scoring to personality tests, although

both Cowdery and Strong have made use of the principle in the measurement of "interests."

BETHANY RESULTS

For a few years we used the Bernreuter Inventory at Bethany College to study the persistence of the personality traits through the first two years of the college experience but we have not been able to continue the study during the last four years. It was assumed that the Inventory gives an evaluation of personality traits and that the traits which it purports to measure, i.e. (a) neurotic tendency, (b) self-sufficiency, (c) introversion, (d) dominance, are independent.

Bethany freshmen were given the Bernreuter in the early fall of 1931, 1932, and 1933. These same students were again tested by the Bernreuter near the end of their sophomore year, i.e., May 1933, May 1934, and May 1935. The number of students for which we have full reports are as follows:

Class entering 1931:	48
Class entering 1932:	46
Class entering 1933:	46

Our study is based on these three groups.

For the first class the means for each trait, as computed from Bernreuter's established percentiles at that time, are as follows:

<i>Trait</i>	<i>Average Score</i>
Neurotic tendency	54.5833
Self-sufficiency	51.7083
Introversion	49.0417
Dominance	46.9167

For this same class, as of May 1933, the means are as follows:

<i>Trait</i>	<i>Average Score</i>
Neurotic tendency	49.3542
Self-sufficiency	54.2708
Introversion	48.1458
Dominance	56.5208

There is not much to learn from a study of the averages of the

testings, but the correlation of the individual scores on these traits gives some indication as to the persistence of these traits through the freshman and sophomore year. The correlation ratio was obtained by the Pearson product-moment method. The results for the three classes are listed in the table below.

CORRELATION BETWEEN SCORES OF COLLEGE STUDENTS TESTED AT BEGINNING OF FRESHMAN YEAR AND AT END OF SOPHOMORE YEAR

<i>Trait</i>	<i>Class entering in 1931</i>	<i>Class entering in 1932</i>	<i>Class entering in 1933</i>
Neurotic tendency .....	.7515	.7567	.6108
Self-sufficiency .....	.7941	.4707	.7822
Introversion .....	.7444	.7253	.7042
Dominance .....	.7668	.6573	.7054

Except in the scores on "self-sufficiency" in the class which entered in 1932, the traits show a fairly high persistence. At least we know there is a fairly high relationship in the scores obtained from the two testings. The fact that the correlation is no higher would suggest that there are personality changes going on in the college experience. Minor alterations in personality within the same individual are common, and we would expect changes of some kind through those late adolescent years. It is likely that they would be perceptible changes—and with such an instrument as this, measurable changes. We think of personality as in something of a state of flux all of the time.

The deeper questions as to whether these changes are toward a more wholesome personality, how much the college contributes to personality development, and the illumination and correction of problems that prevent good adjustment quickly suggest themselves, but not the answers.

From the standpoint of the personnel officer and instructor, the correlation treatment yields only limited conclusions. The person who deals directly with the student is concerned with the way the scores shift and in what direction that shift is made. By tabulating

and studying the changes that occurred in individual scores, it is possible to make some interesting observations.

A partial analysis of the scores from the class entering in 1931 is included to show the number of students whose scores shifted one way or the other and the extent of the shift in the two college years. The data are as follows:

	<i>Total</i>	<i>Changed 1 to 10 points in per- centile rank</i>	<i>Changed over 10 points in per- centile rank</i>
NEUROTIC TENDENCY			
Increase	18	11	7
Decrease	29	13	16
Unvaried	1		
SELF-SUFFICIENCY			
Increase	28	18	10
Decrease	16	8	8
Unvaried	4		
INTROVERSION			
Increase	18	7	11
Decrease	26	12	14
Unvaried	4		
DOMINANCE			
Increase	36	18	18
Decrease	8	5	3
Unvaried	4		

An interesting observation brought out by this tabulation is best shown by presenting the data as follows:

<i>Trait</i>	<i>Direction of Greatest Number of Changes</i>
Neurotic tendency	Decrease (9)
Self-sufficiency	Increase (12)
Introversion	Decrease (8)
Dominance	Increase (28)

In each trait measured, the majority of individuals show a change in the "better" direction. In other words, the scores of nine more individuals decreased in neurotic tendencies than increased, twelve more increased in self-sufficiency than decreased, eight more decreased in tendency to introversion than increased, and twenty-eight more increased in tendency to dominate than decreased. It is not too much to assume that, in this group, the majority seem to have profited in terms of "wholesome personality" from their college experiences. There is evidence, of course, that some students made poorer adjustment. It is especially interesting that in the dominance trait, the number with increased scores is larger than any other. Here the number of individuals with increased scores exceeds the number with decreased scores by an amount equal to one less than the sum of the differences in the other three combined. Perhaps the dominance trait has its "flowering" in that sophomore year.

RELIABILITY

The correlations reported at Bethany College between student scores on the Bernreuter in September and the scores on the same test several months later might be considered as "coefficients of reliability" as determined by the re-test method. In the light of what we know of the dynamics of personality, this would not be a wise suggestion. As mentioned above, Bernreuter determined reliability by the split-half method, correcting this coefficient by the Brown-Spearman formula. This is actually only a measure of internal consistency, but that in itself is a most important consideration. He reported reliability coefficients as follows:

<i>Trait</i>	<i>Group A</i>	<i>Group B</i>
Neurotic tendency .....	.91	.88
Self-sufficiency .....	.92	.85
Introversion .....	.89	.85
Dominance .....	.89	.88

A few of the typical reliabilities of questionnaires of this kind, taken from the experimental literature, are as follows:

<i>Test</i>	<i>Reported by</i>	<i>Method of determining reliability</i>	<i>Coefficient of reliability</i>
Woodworth Psycho.	Mathews	Split-half	.90
Woodworth-Mathews	Mathews	Split-half	.667
Woodworth-Mathews	Mathews	Retest	.697
Colgate, M.H.	Hoitsma	Retest	.85
Colgate, M.H.	Hoitsma	Split-half	.79
Heidbreder, I.E.	Heidbreder	Self-associates ratings	.55
Marston, I.E.	Marston	Split-half	.89
Cowdery Interest	Cowdery	Split-half	.827
Mental Hyg. Inven.	House	Retest	.85
Thurstone Person.	Thurstone	Split-half	.946
Adjustment Question- naire	Symonds	Split-half	.90

SUMMARY

In the field of personality measurement, the time is not ripe for wide generalizations and conclusions. We are at the place where we need to face many critical questions. Terms need to be more closely defined. "Personality" itself needs to be defined in more specific language. Just what we are attempting to measure is not always clear. Are we measuring the exact status of an individual's behavior or are we measuring the probability of action by that individual in one direction or another? Perhaps we measure both.

That great progress has been made in this field is evident. The instruments now available are making valuable contributions in personnel and psychological work. These instruments possess only limited diagnostic value, and they can not be expected to take the place of the personal interview and case study. It is not unlikely that personality tests will be used even more widely than intelligence tests in our social, penal, and educational agencies. The adjustment status of individuals is at the root of many problems and issues.

The Bethany study with the Bernreuter gives the first re-test correlations so far reported at the college level. The ratios obtained indicate some persistence in the traits measured, but for a more complete understanding we must wait until we have techniques to equate conditions of environment, general stimulation, and many

other factors. One of the recurring questions with the Bernreuter is whether it actually measures the four traits independently. After making a statistical study of the scores made by a group of adults, Lorge⁽¹⁶⁾ suggests that probably not more than two independent traits can be used to account for the "traits" of the Inventory. Lorge writes: "Personality traits can not be created by the psychologist. If the concept of personality is to have meaning, it must be conceived as an aspect of the individual—an aspect susceptible to quantification. Naming a trait does not make it a trait. To be useful in psychology, a trait must be regarded as freed from the influences of other traits, and other aspects of the individual. The separation of neurotic tendency from introversion-extroversion is a desirable goal, but it is a goal not easily achieved by consideration of measurements that correlate too highly. Purity of trait from the point of view of consistency of measurement, from the point of view of reliability of measurement, and from the point of view of independence of measurement, is the only hope in the all too elusive field of personality diagnosis."

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